

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

FIG. 1A

```

5'   11       20       29       38       47       56
GCC ATG GGG GGA AAG CAG CGG GAC GAG GAT GAC GAG GCC TAC GGG AAG CCA GTC
-----
      M   G   G   K   Q   R   D   E   D   D   E   A   Y   G   K   P   V

      65       74       83       92       101       110
AAA TAC GAC CCC TCC TTT CGA GGC CCC ATC AAG AAC AGA AGC TGC ACA GAT GTC
-----
      K   Y   D   P   S   F   R   G   P   I   K   N   R   S   C   T   D V

      119       128       137       146       155       164
ATC TGC TGC GTC CTC TTC CTG CTC TTC ATT CTA GGT TAC ATC GTG GTG GGG ATT
-----
      I   C   C   V   L   F   L   L   F   I   L   G   Y   I   V   V   G   I

      173       182       191       200       209       218
GTG GCC TGG TTG TAT GGA GAC CCC CGG CAA GTC CTC TAC CCC AGG AAC TCT ACT
-----
      V   A   W   L   Y   G   D   P   R   Q   V   L   Y   P   R   N   S   T

      227       236       245       254       263       272
GGG GCC TAC TGT GGC ATG GGG GAG AAC AAA GAT AAG CCG TAT CTC CTG TAC TTC
-----
      G   A   Y   C   G   M   G   E   N   K   D   K   P   Y   L L Y F

      281       290       299       308       317       326
AAC ATC TTC AGC TGC ATC CTG TCC AGC AAC ATC ATC TCA GTT GCT GAG AAC GGC
-----
      N   I   F   S   C   I   L   S   S   N   I   I   S   V   A   E   N   G

      335       344       353       362       371       380
CTA CAG TGC CCC ACA CCC CAG GTG TGT GTG TCC TCC TGC CCG GAG GAC CCA TGG
-----
      L   Q   C   P   T   P   Q   V   C   V   S   S   C   P   E   D   P   W

      389       398       407       416       425       434
ACT GTG GGA AAA AAC GAG TTC TCA CAG ACT GTT GGG GAA GTC TTC TAT ACA AAA
-----
      T   V   G   K   N   E   F   S   Q   T   V   G   E   V   F   Y   T   K

      443       452       461       470       479       488
AAC AGG AAC TTT TGT CTG CCA GGG GTA CCC TGG AAT ATG ACG GTG ATC ACA AGC
-----
      N   R   N   F   C   L   P   G   V   P   W   N   M   T   V   I   T   S

      497       506       515       524       533       542
CTG CAA CAG GAA CTC TGC CCC AGT TTC CTC CTC CCC TCT GCT CCA GCT CTG GGG
-----
      L   Q   Q   E   L   C   P   S   F   L   L   P   S   A   P   A   L   G

      551       560       569       578       587       596
CGC TGC TTT CCA TGG ACC AAC GTT ACT CCA CCG GCG CTC CCA GGG ATC ACC AAT
-----
      R   C   F   P   W   T   N   V   T   P   P   A   L   P   G   I   T   N

```

FIG. 1B

605	614	623	632	641	650
GAC ACC ACC ATA CAG	CAG GGG ATC AGC	GGT CTT ATT GAC	AGC CTC AAT GCC	CGA	
D T T I Q	Q G I S	G L I D	S L N A	R	
659	668	677	686	695	704
GAC ATC AGT GTT AAG	ATC TTT GAA GAT	TTT GCC CAG TCC	TGG TAT TGG	ATT CTT	
D I S V K	I F E D	F A Q S	W Y W	I L	
713	722	731	740	749	758
GTT GCC CTG GGG GTG	GCT CTG GTC TTG	AGC CTA CTG	TTT ATC TTG	CTT CTG	CGC
V A L G V	A L V L	S L L	F I L	L L	R
767	776	785	794	803	812
CTG GTG GCT GGG CCC	CTG GTG CTG GTG	CTG ATC CTG	GGA GTG CTG	GGC GTG	CTG
L V A G	P L V L	V L I L	G V L	G V L	
821	830	839	848	857	866
GCA TAC GGC ATC TAC	TAC TGC TGG GAG	GAG TAC CGA	GTG CTG CGG	GAC AAG	GGC
A Y G I Y	Y C W E	E Y R V	L R D	K G	
875	884	893	902	911	920
GCC TCC ATC TCC CAG	CTG GGT TTC ACC	ACC AAC CTC	AGT GCC TAC	CAG AGC	GTG
A S I S Q	L G F T	T N L S	A Y Q	S V	
929	938	947	956	965	974
CAG GAG ACC TGG CTG	GCC GCC CTG	ATC GTG TTG	GCG GTG CTT	GAA GCC	ATC
Q E T W L	A A L I	V L A V	L E A I	L	
983	992	1001	1010	1019	1028
CTG CTG ATG CTC ATC	TTC CTG CGG CAG	CGG ATT CGT	ATT GCC ATC	GCC CTC	CTG
L L M L I	F L R Q	R I R I	A I A	L L	
1037	1046	1055	1064	1073	1082
AAG GAG GCC AGC AAG	GCT GTG GGA CAG	ATG ATG TCT	ACC ATG TTC	TAC CCA	CTG
K E A S K	A V G Q	M M S	T M F	Y P L	
1091	1100	1109	1118	1127	1136
GTC ACC TTT GTC CTC	CTC CTC ATC	TGC ATT GCC	TAC TGG GCC	ATG ACT	GCT
V T F V L	L L I C	I A Y W	A M T	A L	
1145	1154	1163	1172	1181	1190
TAC CTG GCT ACA TCG	GGG CAA CCC CAG	TAT GTG CTC	TGG GCA TCC	AAC ATC	AGC
Y L A T S	G Q P Q	Y V L W	A S N	I S	
1199	1208	1217	1226	1235	1244
TCC CCC GGC TGT GAG	AAA GTG CCA	ATA AAT ACA	TCA TGC AAC	CCC ACG	GCC
S P G C E	K V P I	N T S C	N P T	A H	

FIG. 1C

1253	1262	1271	1280	1289	1298
CTT GTG AAC TCC TCG TGC CCA GGG CTG ATG TGC GTC TTC CAG GGC TAC TCA TCC					
-----					
L	V	N	S	S	C
P	G	L	M	C	V
F	Q	G	Y	S	S
-----					
1307	1316	1325	1334	1343	1352
AAA GGC CTA ATC CAA CGT TCT GTC TTC AAT CTG CAA ATC TAT GGG GTC CTG GGC					
-----					
K	G	L	I	Q	R
S	V	F	N	L	Q
I	Y	G	V	L	G
-----					
1361	1370	1379	1388	1397	1406
CTC TTC TGG ACC CTT AAC TGG GTA CTG GCC CTG GGC CAA TGC GTC CTC GCT GGA					
-----					
L	F	W	T	L	N
W	V	L	A	L	G
Q	C	V	L	A	G
-----					
1415	1424	1433	1442	1451	1460
GCC TTT GCC TCC TTC TAC TGG GCC TTC CAC AAG CCC CAG GAC ATC CCT ACC TTC					
-----					
A	F	A	S	F	Y
W	A	F	H	K	P
Q	D	I	P	T	F
-----					
1469	1478	1487	1496	1505	1514
CCC TTA ATC TCT GCC TTC ATC CGC ACA CTC CGT TAC CAC ACT GGG TCA TTG GCA					
-----					
P	L	I	S	A	F
I	R	T	L	R	Y
H	T	G	S	L	A
-----					
1523	1532	1541	1550	1559	1568
TTT GGA GCC CTC ATC CTG ACC CTT GTG CAG ATA GCC CGG GTC ATC TTG GAG TAT					
-----					
F	G	A	L	I	L
T	L	V	Q	I	A
R	V	I	L	E	Y
-----					
1577	1586	1595	1604	1613	1622
ATT GAC CAC AAG CTC AGA GGA GTG CAG AAC CCT GTA GCC CGC TGC ATC ATG TGC					
-----					
I	D	H	K	L	R
G	V	Q	N	P	V
A	R	C	I	M	C
-----					
1631	1640	1649	1658	1667	1676
TGT TTC AAG TGC TGC CTC TGG TGT CTG GAA AAA TTT ATC AAG TTC CTA AAC CGC					
-----					
C	F	K	C	C	L
W	C	L	E	K	F
I	K	F	L	N	R
-----					
1685	1694	1703	1712	1721	1730
AAT GCA TAC ATC ATG ATC GCC ATC TAC GGG AAG AAT TTC TGT GTC TCA GCC AAA					
-----					
N	A	Y	I	M	I
A	I	Y	G	K	N
F	C	V	S	A	K
-----					
1739	1748	1757	1766	1775	1784
AAT GCG TTC ATG CTA CTC ATG CGA AAC ATT GTC AGG GTG GTC GTC CTG GAC AAA					
-----					
N	A	F	M	L	L
M	R	N	I	V	R
V	V	V	V	L	D
-----					
1793	1802	1811	1820	1829	1838
GTC ACA GAC CTG CTG CTG TTC TTT GGG AAG CTG CTG GTG GTC GGA GGC GTG GGG					
-----					
V	T	D	L	L	L
F	F	G	K	L	L
V	V	G	G	V	G
-----					
1847	1856	1865	1874	1883	1892
GTC CTG TCC TTC TTT TTT TTC TCC GGT CGC ATC CCG GGG CTG GGT AAA GAC TTT					
-----					
V	L	S	F	F	F
F	S	G	R	I	P
G	L	G	K	D	F

FIG. 1D

1901	1910	1919	1928	1937	1946
AAG AGC CCC CAC CTC AAC TAT TAC TGG CTG CCC ATC ATG ACC TCC ATC CTG GGG					
K S P H L N Y Y W L P I M T S I L G					
1955	1964	1973	1982	1991	2000
GCC TAT GTC ATC GCC AGC GGC TTC TTC AGC GTT TTC GGC ATG TGT GTG GAC ACG					
A Y V I A S G F F S V F G M C V D T					
2009	2018	2027	2036	2045	2054
CTC TTC CTC TGC TTC CTG GAA GAC CTG GAG CGG AAC AAC GGC TCC CTG GAC CGG					
L F L C F L E D L E R N N G S L D R					
2063	2072	2081	2090	2099	2108
CCC TAC TAC ATG TCC AAG AGC CTT CTA AAG ATT CTG GGC AAG AAG AAC GAG GCG					
P Y Y M S K S L L K I L G K K N E A					
2117	2126	2135	2144	2153	2162
CCC CCG GAC AAC AAG AAG AGG AAG AAG TGA CAG CTC CGG CCC TGA TCC AGG ACT					
P P D N K K R K K *					
2171	2180	2189	2198	2207	2216
GCA CCC CAC CCC CAC CGT CCA GCC ATC CAA CCT CAC TTC GCC TTA CAG GTC TCC					
2225	2234	2243	2252	2261	2270
ATT TTG TGG TAA AAA AAG GTT TTA GGC CAG GCG CCG TGG CTC ACG CCT GTA ATC					
2279	2288	2297	2306	2315	2324
CAA CAC TTT GAG AGG CTG AGG CGG GCG GAT CAC CTG AGT CAG GAG TTC GAG ACC					
2333	2342	2351	2360	2369	2378
AGC CTG GCC AAC ATG GTG AAA CCT CCG TCT CTA TTA AAA ATA CAA AAA TTA GCC					
2387	2396	2405	2414	2423	2432
GAG AGT GGT GGC ATG CAC CTG TCA TCC CAG CTA CTC GGG AGG CTG AGG CAG GAG					
2441	2450	2459	2468	2477	2486
AAT CGC TTG AAC CCG GGA GGC AGA GGT TGC AGT GAG CCG AGA TCG CGC CAC TGC					
2495	2504	2513	2522	2531	2540
ACT CCA ACC TGG GTG ACA GAC TCT GTC TCC AAA ACA AAA CAA ACA AAC AAA AAG					
2549	2558	2567	2576	2585	
ATT TTA TTA AAG ATA TTT TGT TAA CTC AGT AAA AAA AAA AAA AAA AA 3'					

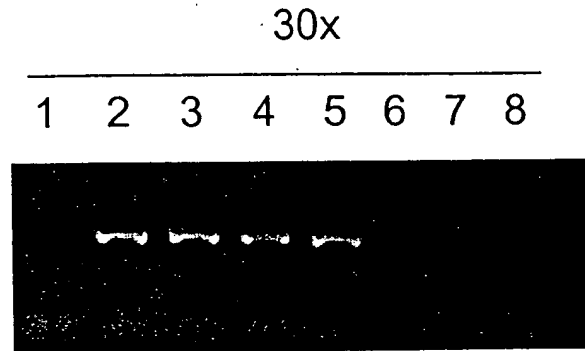
## FIG. 1E

```
9      18      27      36      45      54
5' GAT CAG GGC GGC CAG CCA GGT CTC CTG CAC GCT CTG GTA GGC ACT GAG GTT GGT
   ---
   D  Q  G  G  Q  P  G  L  L  H  A  L  V  G  T  E  V  G

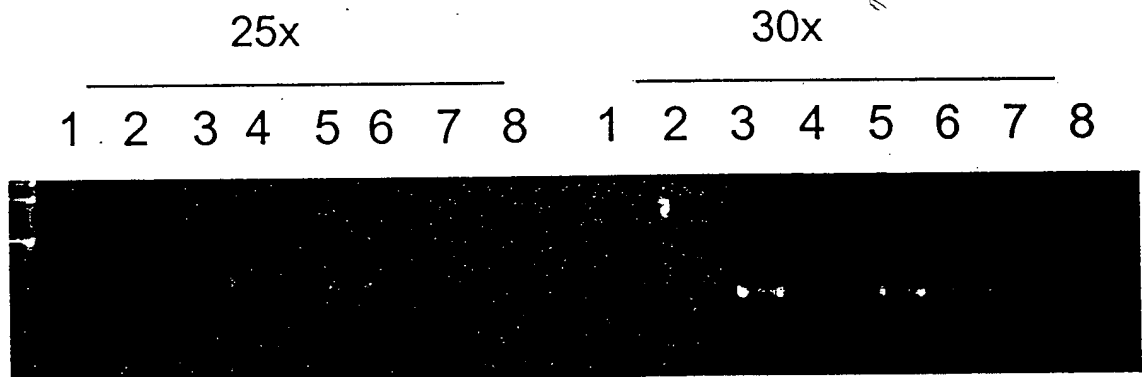
      63      72      81      90      99      108
GGT GAA ACC CAG CTG GGA GAT GGA GGC GCC CTC GTC CCG CAG CAC TCG GTA CTC
   ---
   G  E  T  Q  L  G  D  G  G  A  L  V  P  Q  H  S  V  L

      117      126      135      144      153
CTC CCA GCA GTA GTA GAT GCC ATA TGC CAG CAC GCC CAG CAC TCC CAG GAT C 3'
   ---
   L  P  A  V  V  D  A  I  C  Q  H  A  Q  H  S  Q  D
```

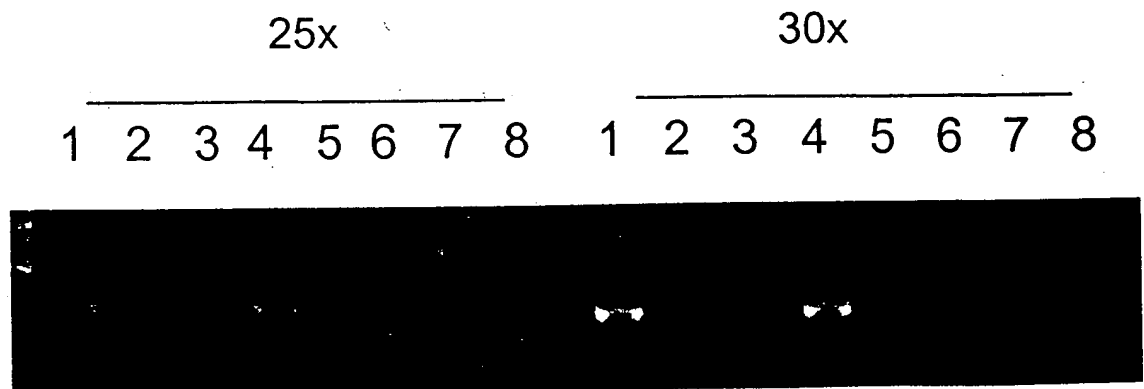
**FIG. 2A**



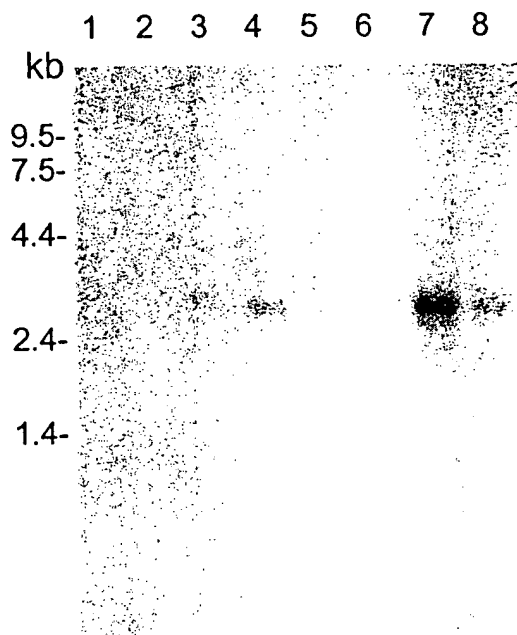
**FIG. 2B**



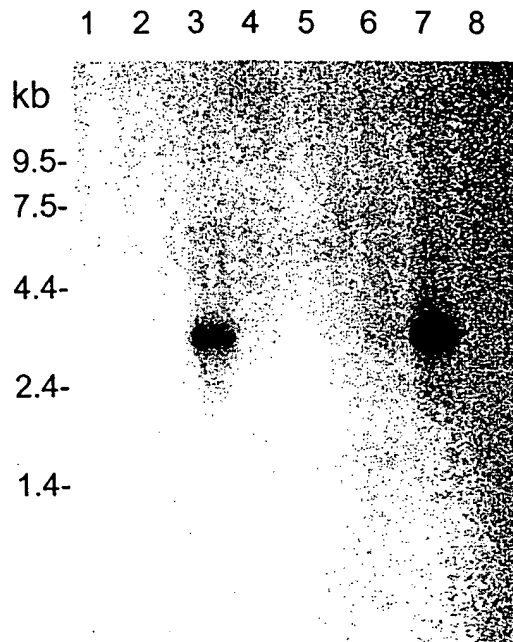
**FIG. 2C**



**FIG. 3A**



**FIG. 3B**



**FIG. 3C**

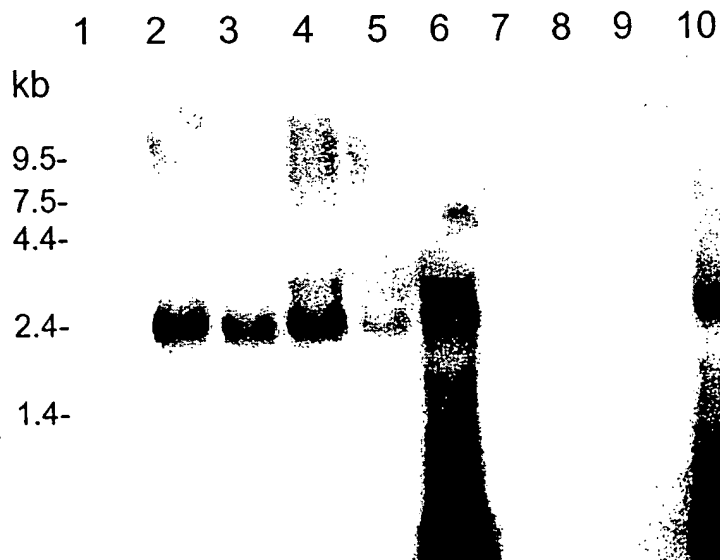




FIG. 4A

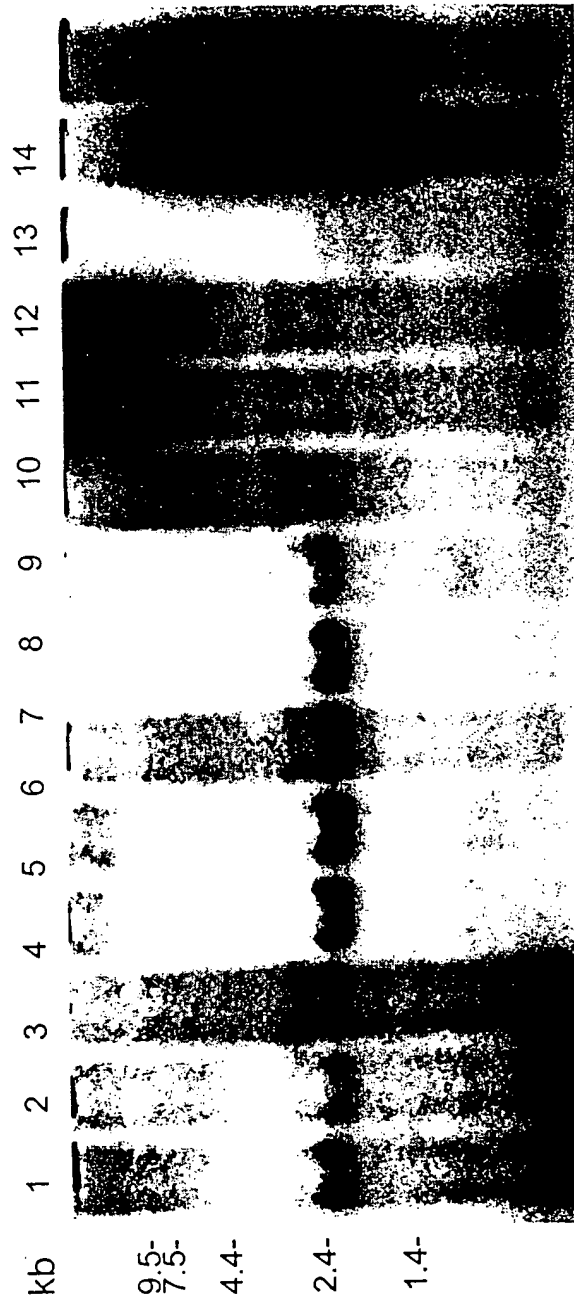
24P4C12	5	QRDEDEAYGKPVKYDPSFRGPIKNRSCTDVICCVLFLFLFILGYIVVGIVAWLYGDPRQV
mNG22	3	RKQNEAEAHGNSAKYDPSFRGPIKNRGCTDIICCVLFLIFILGYIIVGLVAVWYGDPRQV *****
24P4C12	65	LYPRNSTGAYCGMGENDKDPYLLYFNIFSCILSSNIISVAENGLQCPTPQVCVSSCPEDP
mNG22	63	LYPRNSTGAYCGVGDNDKDPVLYFDILSCAAAINIISIAENGLQCPTPQVCVSSCPEDP *****
24P4C12	125	WTVGKNEFSQTVGEVFYTKNRNFCPLPGVPWNMTVITSLQOELCPSFLLPSAPALGRCFPW
mNG22	123	WAVEVFQFSKTVGEV-YGERRNFCPLPAVSPDMIVEESLQKGLCPRFLLPSTPALGRCFPL *****
24P4C12	185	TNVTTPPALPGIT-NDTTIQGISGLIDSLNARDISVKIFEDFAQSWYILVALGVALVLS
mNG22	182	PNINFTLPEDLRINNNTTVSNGISGLLDSINARDVSVKIFEDFAQSWYILVALGVALALS *****
24P4C12	244	LLFILLRLVAGPLVLVLILGLVGLVAYGIYYCWEEYRVLDRDKGASISQLGFTTNLSAYQ
mNG22	242	LLFILLRLVAAPLVLLIIVGLVAVLAYGIYHCWQQYQVFRDKGASITQLGFTTNFSAYQ *****
24P4C12	304	SVQETWLAALIVLAVLEAILLLMLIFLRQRIRIAIALKEASKAVGQMMSTMFYPLVTFV
mNG22	302	SVKETWLAALIVLAVLEGILLMLIFLRQRIRIAIALKEASRAVGQMMSTMFYPLVTFV *****
24P4C12	364	LLLCIAYWAMTALYLATSGQPQYVLWASNISPGCEKVPINTSCNPTAHLVNSSCPGLM
mNG22	362	LLVICIGYWAVTALYLATSGQPQYIYASNTSTPGCENVPVNMTCDPMAPL-NSSCPNLK *****
24P4C12	424	CVFQGYSSKGLIQRSVFNLQIYGVGLFWTLNWVLALGQCVLAGAFASFYWAFHKPDIP
mNG22	421	CVFKGYSTTGLAQRSLFNLQIYGVGLFWTVNWVLALGQCVLAGAFASFYWAFHKPRDIP *****
24P4C12	484	TFPLISAFIRTLRYHTGSLAFGALILTLVQIARVILEYIDHKLRGVQNPVARCIMCCFKC
mNG22	481	TFPLSSAFIRTLRYHTGSLAFGALILSLVQIARVILEYIDHKLRGSQNPVARIICCFKC *****
24P4C12	544	CLWCLEKFIKFLNRNAYIMIAIYGKNFCVSAKNAFMLLMRNIVRVVLDKVTDLLFFGK
mNG22	541	CLWCLEKFIKFLNRNAYIMIAIYGKNFCVSAKNAFMLLMRNVLRVVLDKVTDLLFFGK *****

## FIG. 4B

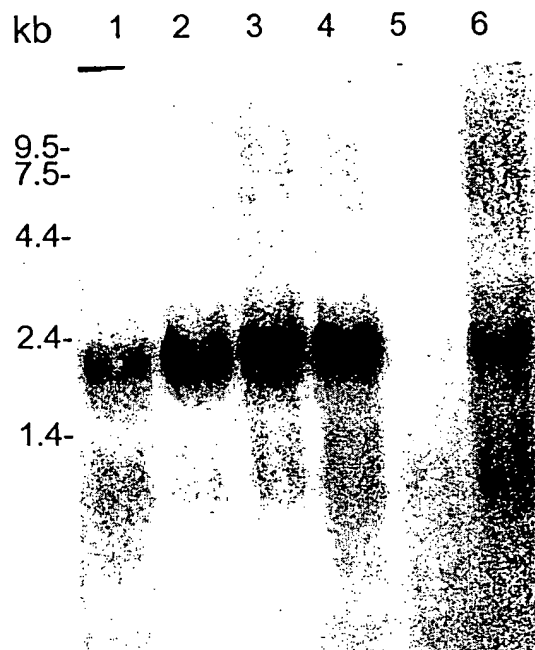
```
24P4C12 604 LLVVG VGVL SFFFFSGRI PGLGKDFKSPHLNYYWLPIMTSILGAYVIASGFFSVFGMCV
mNG22   601 LLVVG VGVL SFFFFSGRIKGLGKDFENPNLNYYWLPIMTSIMGAYVIASGFFSVFGMCV
          ***** * *****
          .*****

24P4C12 664 DTLFLCFLEDLERNNGSLDRPYYSKSLKILGKKNEAPPDNKKRKK
mNG22   661 DTLFLCFLEDLERNNGSQERPYYPKALLKILGKKNEAPTGGKTRKK
          ***** * ***** * ***** * *****
```

FIG. 5



**FIG. 6A**



**FIG. 6B**



$\beta$ -actin

FIG. 7A

```

5'   10      19      28      37      46      55
GCC CGC CCG GGC TGG GGT CGC GCT GGC TCG GAC TCC GCT CCC CGC CCC GCC GCG
-----
      64      73      82      91     100     109
GCC ATG GAG GAC GAG CGG AAA AAC GGA GCC TAC GGA ACG CCA CAG AAG TAT GAT
-----
      M   E   D   E   R   K   N   G   A   Y   G   T   P   Q   K   Y   D

      118     127     136     145     154     163
CCC ACT TTC AAA GGA CCC ATT TAC AAT AGG GGC TGC ACG GAT ATC ATA TGC TGT
-----
      P   T   F   K   G   P   I   Y   N   R   G   C   T   D   I   I   C   C

      172     181     190     199     208     217
GTG TTC CTG CTC CTG GCC ATT GTG GGC TAC GTG GCT GTA GGC ATC ATA GCC TGG
-----
      V   F   L   L   L   A   I   V   G   Y   V   A   V   G   I   I   A   W

      226     235     244     253     262     271
ACT CAT GGA GAC CCT CGA AAG GTG ATC TAC CCC ACT GAT AGC CGG GGC GAG TTC
-----
      T   H   G   D   P   R   K   V   I   Y   P   T   D   S   R   G   E   F

      280     289     298     307     316     325
TGC GGG CAG AAG GGC ACA AAA AAC GAG AAC AAA CCC TAT CTG TTT TAT TTC AAC
-----
      C   G   Q   K   G   T   K   N   E   N   K   P   Y   L   F   Y   F   N

      334     343     352     361     370     379
ATT GTG AAA TGT GCC AGC CCC CTG GTT CTG CTG GAA TTC CAA TGT CCC ACT CCC
-----
      I   V   K   C   A   S   P   L   V   L   L   E   F   Q   C   P   T   P

      388     397     406     415     424     433
CAG ATC TGC GTG GAA AAA TGC CCC GAC CGC TAC CTC ACG TAC CTG AAT GCT CGC
-----
      Q   I   C   V   E   K   C   P   D   R   Y   L   T   Y   L   N   A   R

      442     451     460     469     478     487
AGC TCC CGG GAC TTT GAG TAC TAT AAG CAG TTC TGT GTT CCT GGC TTC AAG AAC
-----
      S   S   R   D   F   E   Y   Y   K   Q   F   C   V   P   G   F   K   N

      496     505     514     523     532     541
AAT AAA GGA GTG GCT GAG GTG CTT CGA GAT GGT GAC TGC CCT GCT GTC CTC ATC
-----
      N   K   G   V   A   E   V   L   R   D   G   D   C   P   A   V   L   I

      550     559     568     577     586     595
CCC AGC AAA CCC TTG GCC CGG AGA TGC TTC CCC GCT ATC CAC GCC TAC AAG GGT
-----
      P   S   K   P   L   A   R   R   C   F   P   A   I   H   A   Y   K   G

      604     613     622     631     640     649
GTC CTG ATG GTG GGC AAT GAG ACG ACC TAT GAG GAT GGG CAT GGC TCC CGG AAA
-----
      V   L   M   V   G   N   E   T   T   Y   E   D   G   H   G   S   R   K

```

FIG. 7B

658	667	676	685	694	703
AAC ATC ACA GAC CTG GTG GAG GGC GCC AAG AAA GCC AAT GGA GTC CTA GAG GCG					
N I T D L V E G A K K A N G V L E A					
712	721	730	739	748	757
CGG CAA CTC GCC ATG CGC ATA TTT GAA GAT TAC ACC GTC TCT TGG TAC TGG ATT					
R Q L A M R I F E D Y T V S W Y W I					
766	775	784	793	802	811
ATC ATA GGC CTG GTC ATT GCC ATG GCG ATG AGC CTC CTG TTC ATC ATC CTG CTT					
I I G L V I A M A M S L L F I I L L					
820	829	838	847	856	865
CGC TTC CTG GCT GGT ATT ATG GTC TGG GTG ATG ATC ATC ATG GTG ATT CTG GTG					
R F L A G I M V W V M I I M V I L V					
874	883	892	901	910	919
CTG GGC TAC GGA ATA TTT CAC TGC TAC ATG GAG TAC TCC CGA CTG CGT GGT GAG					
L G Y G I F H C Y M E Y S R L R G E					
928	937	946	955	964	973
GCC GGC TCT GAT GTC TCT TTG GTG GAC CTC GGC TTT CAG ACG GAT TTC CGG GTG					
A G S D V S L V D L G F Q T D F R V					
982	991	1000	1009	1018	1027
TAC CTG CAC TTA CGG CAG ACC TGG TTG GCC TTT ATG ATC ATT CTG AGT ATC CTT					
Y L H L R Q T W L A F M I I L S I L					
1036	1045	1054	1063	1072	1081
GAA GTC ATT ATC ATC TTG CTG CTC ATC TTT CTC CGG AAG AGA ATT CTC ATC GCG					
E V I I I L L L I F L R K R I L I A					
1090	1099	1108	1117	1126	1135
ATT GCA CTC ATC AAA GAA GCC AGC AGG GCT GTG GGA TAC GTC ATG TGC TCC TTG					
I A L I K E A S R A V G Y V M C S L					
1144	1153	1162	1171	1180	1189
CTC TAC CCA CTG GTC ACC TTC TTC TTG CTG TGC CTC TGC ATC GCC TAC TGG GCC					
L Y P L V T F F L L C L C I A Y W A					
1198	1207	1216	1225	1234	1243
AGC ACT GCT GTC TTC CTG TCC ACT TCC AAC GAA GCG GTC TAT AAG ATC TTT GAT					
S T A V F L S T S N E A V Y K I F D					
1252	1261	1270	1279	1288	1297
GAC AGC CCC TGC CCA TTT ACT GCG AAA ACC TGC AAC CCA GAG ACC TTC CCC TCC					
D S P C P F T A K T C N P E T F P S					

FIG. 7C

1306	1315	1324	1333	1342	1351
TCC CAT GAG TCC CGC CAA TGC CCC AAT GCC CGT TGC CAG TTC GTC TTC TAC GGT					
S H E S R Q C P N A R C Q F V F Y G					
1360	1369	1378	1387	1396	1405
GGT GAG TCG GGC TAC CAC CGG GCC CTG CTG GGC CTG CAG ATC TTC AAT GCC TTC					
G E S G Y H R A L L G L Q I <u>F N A F</u>					
1414	1423	1432	1441	1450	1459
ATG TTC TTC TGG TTG GCC AAC TTC GTG CTG GCG CTG GGC CAG GTC ACG CTG GCC					
<u>M F F W L A N F V L A L G Q V T L A</u>					
1468	1477	1486	1495	1504	1513
GGG GCC TTT GCC TCC TAC TAC TGG GCC CTG CGC AAG CCG GAC GAC CTG CCG GCC					
<u>G A F A S Y Y W A L R K P D D L P A</u>					
1522	1531	1540	1549	1558	1567
TTC CCG CTC TTC TCT GCC TTT GGC CGG GCG CTC AGG TAC CAC ACA GGC TCC CTG					
F P L F S A F G R A L R Y H <u>T G S L</u>					
1576	1585	1594	1603	1612	1621
GCC TTT GGC GCG CTC ATC CTG GCC ATT GTG CAG ATC ATC CGT GTG ATA CTC GAG					
<u>A F G A L I L A I V Q I I R V I L E</u>					
1630	1639	1648	1657	1666	1675
TAC CTG GAT CAG CGG CTG AAA GCT GCA GAG AAC AAG TTT GCC AAG TGC CTC ATG					
<u>Y L D Q R L K A A E N K F A K C L M</u>					
1684	1693	1702	1711	1720	1729
ACC TGT CTC AAA TGC TGC TTC TGG TGC CTG GAG AAG TTC ATC AAA TTC CTT AAT					
<u>T C L K C C F W C L E K F I K F L N</u>					
1738	1747	1756	1765	1774	1783
AGG AAT GCC TAC ATC ATG ATT GCC ATC TAC GGC ACC AAT TTC TGC ACC TCG GCC					
R N A Y I M I A I Y G T N F C T S A					
1792	1801	1810	1819	1828	1837
AGG AAT GCC TTC TTC CTG CTC ATG AGA AAC ATC ATC AGA GTG GCT GTC CTG GAT					
R N A F F L L M R N I I R V A V L D					
1846	1855	1864	1873	1882	1891
AAA GTT ACT GAC TTC CTC TTC CTG TTG GGC AAA CTT CTG ATC GTT GGT AGT GTG					
<u>K V T D F L F L L G K L L I V G S V</u>					
1900	1909	1918	1927	1936	1945
GGG ATC CTG GCT TTC TTC TTC TTC ACC CAC CGT ATC AGG ATC GTG CAG GAT ACA					
<u>G I L A F F F F T H R I R I V Q D T</u>					

FIG. 7D

1954	1963	1972	1981	1990	1999
GCA CCA CCC CTC	AAT TAT TAC TGG GTT CCT	ATA CTG ACG GTG ATC GTT	GGC TCC		
-----					
A P P L N Y Y W V P I L T V	I V G S				
-----					
2008	2017	2026	2035	2044	2053
TAC TTG ATT GCA CAC GGT TTC	TTC AGC GTC TAT GGC ATG TGT	GTG GAC ACG CTG			
-----					
Y L I A H G F F S V Y G M C V D T L					
-----					
2062	2071	2080	2089	2098	2107
TTC CTC TGC TTC TTG GAG GAC CTG	GAG AGG AAT GAC GGC TCG GCC	GAG AGG CCT			
-----					
F L C F L E D L E R N D G S A E R P					
-----					
2116	2125	2134	2143	2152	2161
TAC TTC ATG TCT TCC ACC CTC AAG AAA	CTC TTG AAC AAG ACC AAC AAG AAG	GCA			
-----					
Y F M S S T L K K L L N K T N K K A					
-----					
2170	2179	2188	2197	2206	2215
GCG GAG TCC TGA AGG CCC CGT GCT CCC	CAC CTC TCA AGG AGT CTC ATG CCG	CAG			
-----					
A E S *					
-----					
2224	2233	2242	2251	2260	2269
GGT GCT CAG TAG CTG GGT CTG TTC CCC	CAG CCC CTT GGG CTC ACC TGA AGT	CCT			
-----					
2278	2287	2296	2305	2314	2323
ATC ACT GCC GCT CTG CCC CTC CCC ATG	AGC CAG ATC CCA CCA GTT TCT GGA	CGT			
-----					
2332	2341	2350	2359	2368	2377
GGA GAG TCT GGG GCA TCT CCT TCT TAT	GCC AAG GGG CGC TTG GAG TTT TCA	TGG			
-----					
2386	2395	2404	2413	2422	2431
CTG CCC CTC CAG ACT GCG AGA AAC AAG	TAA AAA CCC ATT GGG GCC TCT TGA	TGT			
-----					
2440	2449	2458	2467	2476	2485
CTG GGA TGG CAC GTG GCC CGA CCT CCA	CAA GCT CCC TCA TGC TTC CTG TCC	CCC			
-----					
2494	2503	2512	2521	2530	2539
GCT TAC ACG ACA ACG GGC CAG ACC ACG	GGA AGG ACG GTG TTT GTG TCT GAG	GGA			
-----					
2548	2557	2566	2575	2584	2593
GCT GCT GGC CAC AGT GAA CAC CCA CGT	TTA TTC CTG CCT GCT CCG GCC AGG	ACT			
-----					
2602	2611	2620	2629	2638	2647
GAA CCC CTT CTC CAC ACC TGA ACA GTT	GGC TCA AGG GCC ACC AGA AGC ATT	TCT			
-----					
2656	2665	2674	2683	2692	2701
TTA TTA TTA TTA TTT TTT AAC CTG GAC	ATG CAT TAA AGG GTC TAT TAG CTT	TCA			
-----					
2710	2719	2728	2737		
AAA AAA AAA AAA AAA AAA AAA AAA AAA	AAA AAA AAA A	3'			
-----					



# FIG. 8

Score = 589 bits (1502), Expect = e-167  
Identities = 317/707 (44%), Positives = 408/707 (56%), Gaps = 34/707 (4%)

24P4C12 12 AYGKPVKYDPSFRGPIKNRSDTVICCVLFLFILGYIVVGIVAWLYGDPQVLYPRNST 71  
AYG P KYDP+F+GPI NR CTD+ICCV LL I+GY+ VGI+AW +GDP+V+YP +S  
H38087 9 AYGTPQKYDPTFKGPIYNRGCTDIICCVFLLLAIVGYVAVGIIAWTHGDPKVIYPTDSR 68

24P4C12 72 GAYCGMG--ENKDKPYLLYFNIFSCILSSNIISVAENGLQCPTPQVCVSSCPEDPWTVGK 129  
G +CG +N++KPYL YFNI C ++ QCPTPQ+CV CP D +  
H38087 69 GEFCGQKGTKNENKPYLFYFNIVKCASPLVLE-----FQCPTPQICVEKCP-DRYLTYL 122

24P4C12 130 NEFSQTVGGEVYFTKRNRFCLPGVPWNMTVITSLQQELCPSFLLPSAPALGRCFPWNTVTP 189  
N S E + + FC+PG N V L+ CP+ L+PS P RCFP +  
H38087 123 NARSSRDFEYY----KQFCVPGFKNNKGVAEVLRDGDCPAVLIPSKPLARRCFPAIHAYK 178

24P4C12 190 PALPGITNDTTIQQG-----ISGLIDS-----LNARDISVKIFEDFAQSWYWIXXXXX 236  
L + N+TT + G I+ L++ L AR ++++IFED+ SWYWI  
H38087 179 GVLM-VGNETTYEDGHGSRKNITDLVEGAKKANGVLEARQLAMRIFEDYTVSWYWIIGL 237

24P4C12 237 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXCWEERYVLRDKGAS---ISQL 293  
+C+ EY LR + S + L  
H38087 238 VIAMAMSLLFIIILLRFLAGIMVWMIIMVILVLGYGIFHCYMEYSRLRGEAGSDVSLVDL 297

24P4C12 294 GFTTNLSAYQSVQETWXXXXXXXXXXXXXXXXXXXXXXXXXQRIRIAIALKEASKAVGQMMS 353  
GF T+ Y +++TW R+RI IAIAL+KEAS+AVG +M  
H38087 298 GFQTDFRVYLHLRQTWLAFFMIILSILEVIIILLIIFLRKRILIAIALIKEASRAVGVMC 357

24P4C12 354 TMFYPLVTFVLLLCIAYWAMTALYLATSGQPQYVLWASNISPPGCEKVPINTSCNPTAH 413  
++ YPLVTF LL +CIAYWA TA++L+TS + Y ++ + P K N P++H  
H38087 358 SLLYPLVTFVLLCLCIAYWASTAVFLSTSNEAVYKIFDDS-PCPFTAKT-CNPETFPSSH 415

24P4C12 414 LVNSSCPGLMCVFQGYSSKGLIQRSVFNLIQYGVGLFWTLNWVLALGQCVLAGAFASY 473  
+ CP C F Y + R++ LQI+ FW N+VLALGQ LAGAFAS+Y  
H38087 416 -ESRQCPNARCQFVYGGESGYHRALLGLQIFNAFMFFWLANFVLALGQVTLAGAFASY 474

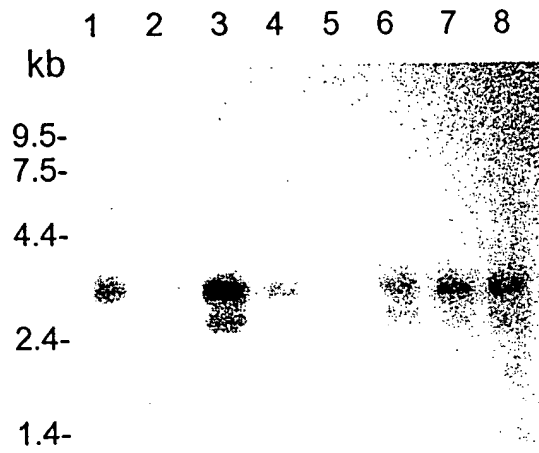
24P4C12 474 WAFHKPDQIPTFPLISAFIRTLRYHTGSLAFGALILTLVQIARVILEYIDHKLRGVQNPV 533  
WA KP D+P FPL SAF R LRYHTGSLAFGALIL +VQI RVILEY+D +L+ +N  
H38087 475 WALRKPDDLPAFPLFSAFGRALRYHTGSLAFGALILAIVQIIRVILEYLDQRLKAAENKF 534

24P4C12 534 ARCIMCCFKCCLWCLEKFIKFLNRNAYIMIAIYGKNFCVSAKNAFMLLMRNIXXXXXXX 593  
A+C+M C KCC WCLEKFIKFLNRNAYIMIAIYG NFC SA+NAF LLMRNI  
H38087 535 AKCLMTCLKCCFWCLEKFIKFLNRNAYIMIAIYGTNFTSARNAFFLLMRNIIRVAVLDK 594

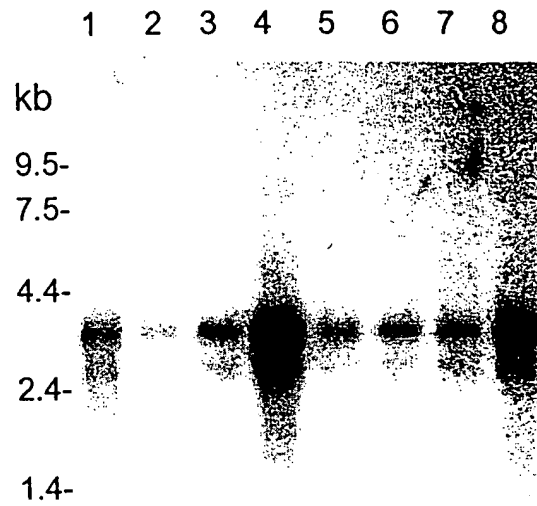
24P4C12 594 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXRIPGLGKDFKSPHLNYYWLPIMTSILGAYVIAS 653  
RI + +D +P LNYYW+PI+T I+G+Y+IA  
H38087 595 VTDFLFLLGKLLIVGSGILAFFFFTHRI-RIVQD-TAPPLNYYWVPIITVIVGSYLIAH 652

24P4C12 654 GFFSVFGMCVDTLFLCFLEDLERNNGSLDRPYMSKSLKILGKKNE 700  
GFFSV+GMCVDTLFLCFLEDLERN+GS +RPY+MS +L K+L K N+  
H38087 653 GFFSVYGMCVDTLFLCFLEDLERNDGSAERPYSSTLKKLLNKTNK 699

**FIG. 9A**



**FIG. 9B**



**FIG. 9C**

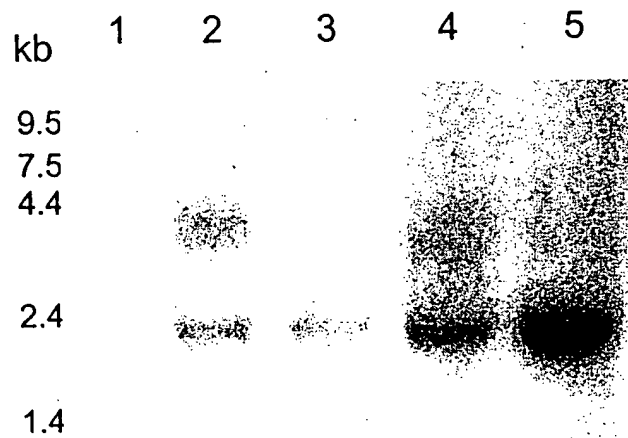


FIG. 10B

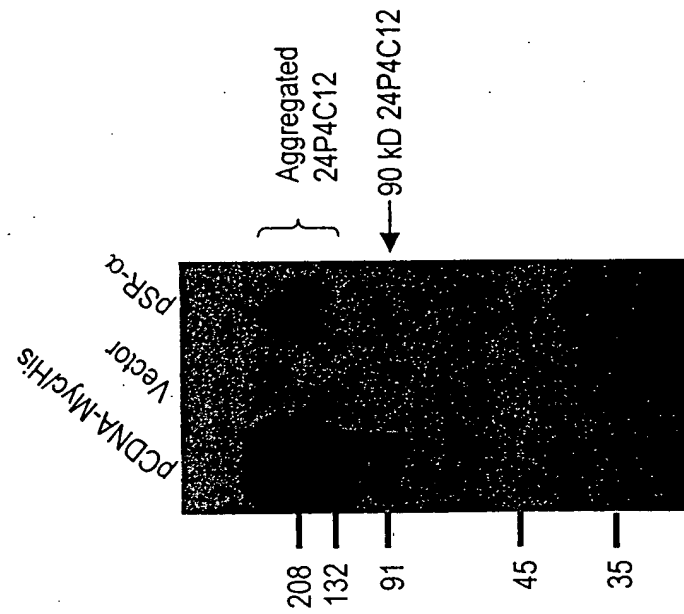


FIG. 10A

